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MICROFILM CONTAINER SURVEY (U)

by

J. B. Malcom

12 November 1971

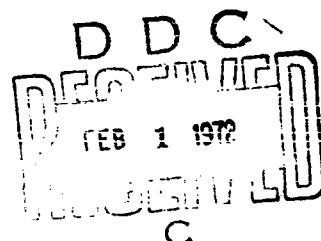


prepared for

ENGINEERING DATA STORAGE & RETRIEVAL (EDS&R) PROJECT

PICATINNY ARSENAL

Dover, New Jersey 07801



Under Contract DAAA21-69-C-0642

by

DATAFLOW SYSTEMS INCORPORATED

7758 Wisconsin Avenue

Bethesda, Maryland 20014

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ABSTRACT

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PREFACE
First Reissue

Since the initial distribution of this report in July of 1971, additional containers have become available in conjunction with the new microform systems. Comments on the initial report have also been received and are incorporated in this first reissue.

The Micro 8 Company has introduced a 8mm cassette for microform systems. The DSI Systems Inc. 16mm cassette, now marketed by Stromberg Datagraphix, has also been included in this reissue.

Additional microfilm reader compatibilities have been brought to our attention and have been added to the data sheets. Dimensions in error have been corrected. Of particular note is the continued production of Eastman Kodak Recordak equipment using their Recordak Film Magazine, previously noted in Section 6 as discontinued.

Additional containers and compatibilities will be noted as they become available and may be included in future revisions.

All comments as to the format, content and usefulness of this publication as well as suggestions for its improvement are earnestly solicited. They may be forwarded to: Department of Army, Picatinny Arsenal, Dover, New Jersey, 07801; Attention: SMTSPA-TS-T-E (L. Volkheimer).

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Microfilm Container Survey

1.0 Introduction

The microfilm industry has standardized on film widths of 16mm, 35mm, 70mm and 105mm. The packaging of these films into cartridges and cassettes for use in microfilm readers, however, has been dependent upon the equipment manufacturer's requirements and little standardization exists. The container of one manufacturer is not interchangeable with those of a second in most equipment. This situation is expanding further in the recent years as new computer-oriented firms enter the microfilm field.

Large users of microfilm equipment and systems, such as the Department of Defense, could simplify their production and packaging of 16mm and 35mm microfilm publications if standard interchangeable cartridges or cassettes for 16 and 35mm microfilm were possible. A study effort, under the American National Standards Institute and the Department of the Army, is striving toward standards for this area.

2.0 Objective

This technical note presents the results of an informal survey made of known manufacturers of microfilm containers used in microfilm readers and reader/printers. The information is intended to serve as an overview of the field of currently available microfilm containers with some sort of easy-rapid or self-threading feature. Emphasis has been placed on the overall physical size and the spindle/drive mechanism interface, since these are the key elements of interchangeability.

3.0

Methodology

An initial list of persons from the microfilm industry, compiled by the Contract Project Officer, was supplemented with additional industry contacts. A letter was sent to each, requesting information on any containers they manufacture. A sample of the proposed format was included.

Additional sources were determined by inquiry to others in the industry. These were followed up by letters and telephone calls. Those originally queried who did not respond were queried again both by letter and telephone. In the majority of the cases the information desired was readily offered. Over sixteen formal requests were issued, and replies were obtained from all but two producers of microfilm containers.

4.0

Results

The known manufacturers of self threading or rapid threading microfilm containers are tabulated in figure 1.

Following the figure, descriptive sheets are given for each container.

5.0

Discussion

Each of the major manufacturers of microfilm equipment have their own container essentially fitting only their own motor driven readers.

Only one concern, Information Design, Inc., makes equipment to convert existing microfilm readers to "cartridge" type systems, and even then a special container must be used.

Several microfilm readers which will accept more than one cartridge type are currently available. Automatic threading, however, is not available on these readers.

Microfilm Containers with Cores

<u>Manufacturer</u>	<u>Type</u>	<u>Size</u>
Alpha Vector	Double Core	11-5/8" x 3-7/8" x 1-11/32"
Bell & Howell	Double Core	6-1/4" x 4-7/8" x 1"
Burroughs Corp.	Single Core	4" x 4" x 1"
DSI Systems Inc.	Double Core	6-1/8" x 4-3/4" x 7/8"
Eastman Kodak	Single Core	4" x 4" x 1"
Information Design, Inc.	Single Core	3-3/4" x 3-3/4" x 1-3/4"
Information Handling Service	Single Core 35mm	3-3/4" x 3-3/4" x 1-3/4"
Memorex Corp.	Double Core	6-3/4" x 3" x 3/4"
Micro 8 Company	Double Core	7-3/8" x 3-1/4" x 1"
Stromberg Datagraphix	Double Core 8mm	5" x 2" x 5/8"
3M Co.	Single Core	4-1/2" x 4-1/2" x 1"
Western Reserve Electronics*	Double Core	4" x 4" x 1"
		8-3/4" x 6-3/4" x 1-1/2"

*Information not provided; container was developed under an Army contract and is not in production.

Figure 1

The newer Eastman Kodak microfilm readers utilize a standard 16mm or 35mm reel with a Thread-Easy⁽¹⁾ threading mechanism. These are not containers per se, but rather constitute a threading system available only in their readers even though they use a standard reel.

6.0 Trends

No trend can be clearly stated in the spread of container microfilm systems, but several observations can be made.

The 3M Co.'s cartridge design has been licensed to other companies for use in microfilm readers, and several new readers use their cartridges.

While Eastman Kodak has introduced a new line of equipment using their Thread-Easy design with a standard reel, other equipment using the Recordak Film Magazine continues in production including one of their newest readers, the Recordak Microstar PR-1.

We must also note the Memorex cassette and its interchangeable core design which permits rapid changing of the film contents by loading and threading a new film wound on a core. This is the only container designed for easy reloading of the film. The container's overall dimensions are identical to the standard data processing card. This size has also been adapted for a microfiche format.

7.0 Conclusions

Proprietary positions appear to preclude development of a "standard container," but a series of interchangeable cartridge or container designs are possible. Design guides for future compatibility are feasible with standards developed at a later date. A range of sizes, methods and means are desirable in these guides to permit innovation. Overall size, core and spindle design, and film pick

(1) TM Eastman Kodak Co.

up point are practical starting points, for example. Evolution of a military specification for DOD compatibility would develop both an internal DOD standard and guidelines for industry.

Manufacturer: Alpha-Vector Incorporated
Address: 501 Fifth Avenue
New York, New York 10017

Type:
16 - 105mm cassette

Person to
Contact: Dr. H. J. Gelberg

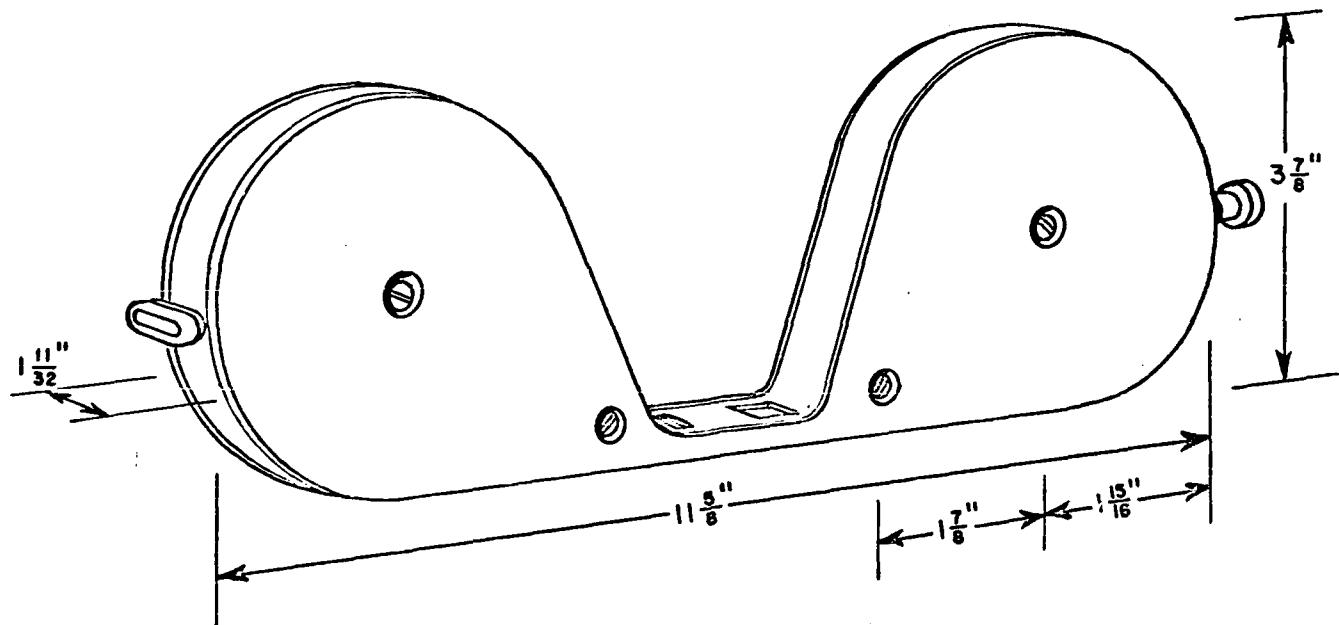
Used with: AV-100 Mass Storage Retrieval Station

Film Size and
Capacity: 100 ft. of 7.5 mil film available in 16mm,
35mm, 70mm, and 105mm sizes.

Spindle Type: Self-contained drive/ tracking mechanism

List Prices: Not quoted

Comments: This is a special cassette designed only for use with the
AV-100 retrieval unit. Cassette width varies with film size.



Manufacturer: Bell & Howell Co.
Business Equipment Group

Type:
16mm cassette

Address: 6800 McCormick Road
Chicago, Illinois 60645

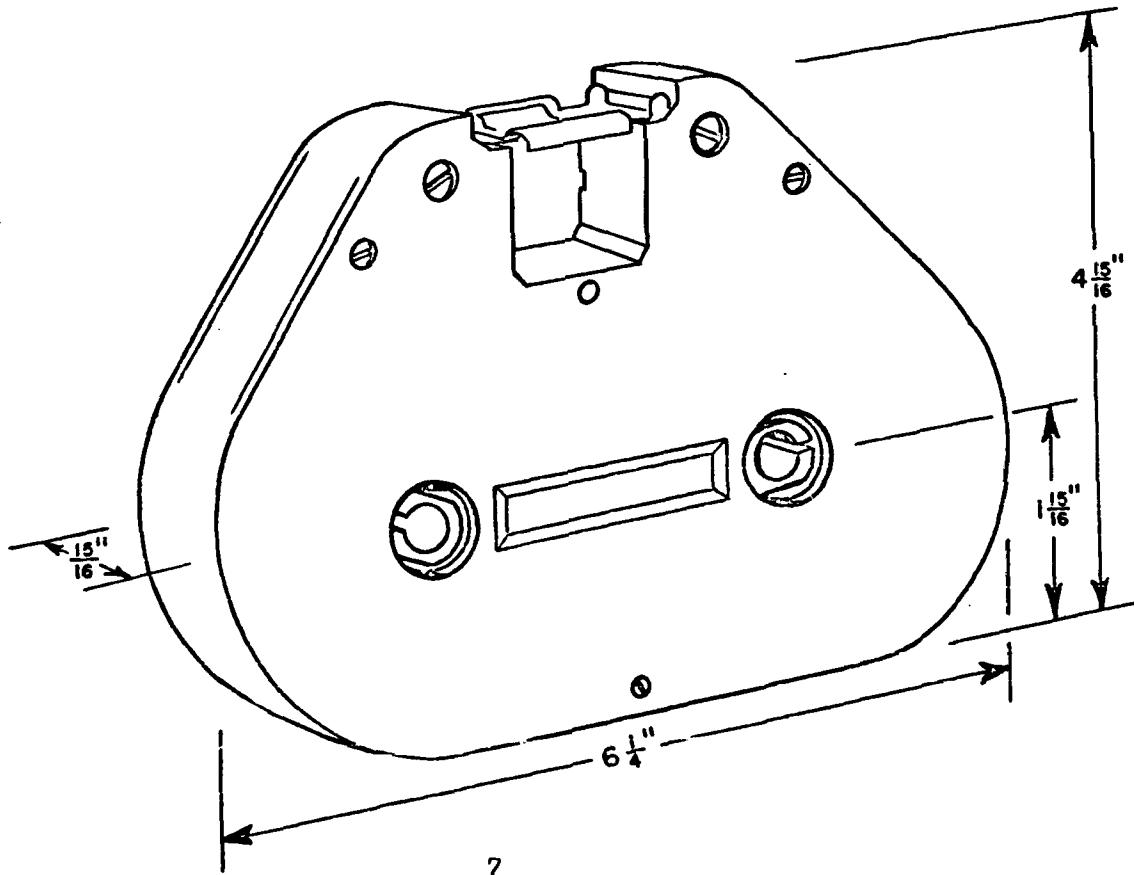
Person to
Contact: Aldolph J. Garwin

Used with: B&H Autoload I, Autoload II

Film Size and
Capacity: 16mm x 100' (5 mil.)

Spindle Type: 5/16" round shaft

List Prices: 1 - 4 3.50 each
5 - 95 2.85 each
100 - 495 2.75 each
500 - 999 2.60 each
1000 + 2.50 each



Manufacturer: Burroughs Corporation
Address: Great Valley Laboratories
Paoli, Pennsylvania 19301

Type: 16mm cartridge

Person to
Contact: Mr. Robert Cain

Used with: Burroughs Microfilm Readers B9061-1 & B9061-2

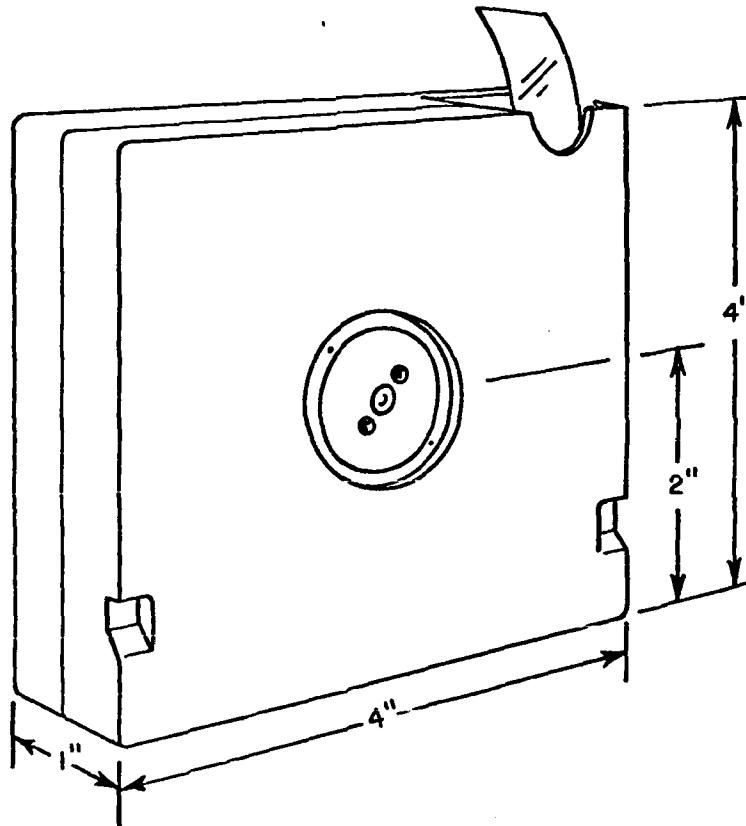
Film Size & Capacity 16mm x 100' (5 mil base)

Spindle Type: 1-1/4" centering hub

List Price: \$1.50

Note: Basically similar to Eastman Kodak Cartridge 1A and 2A which can be used in the Burroughs equipment.

Compatible with: Dietzgen 4317
Microfilm Products 2000
Ednalite



Manufacturer: DSI Systems Inc. Type: 16mm cassette

Address: 15 Columbus Circle
New York, New York 10023

Person to Contact: Mr. Robert Harte

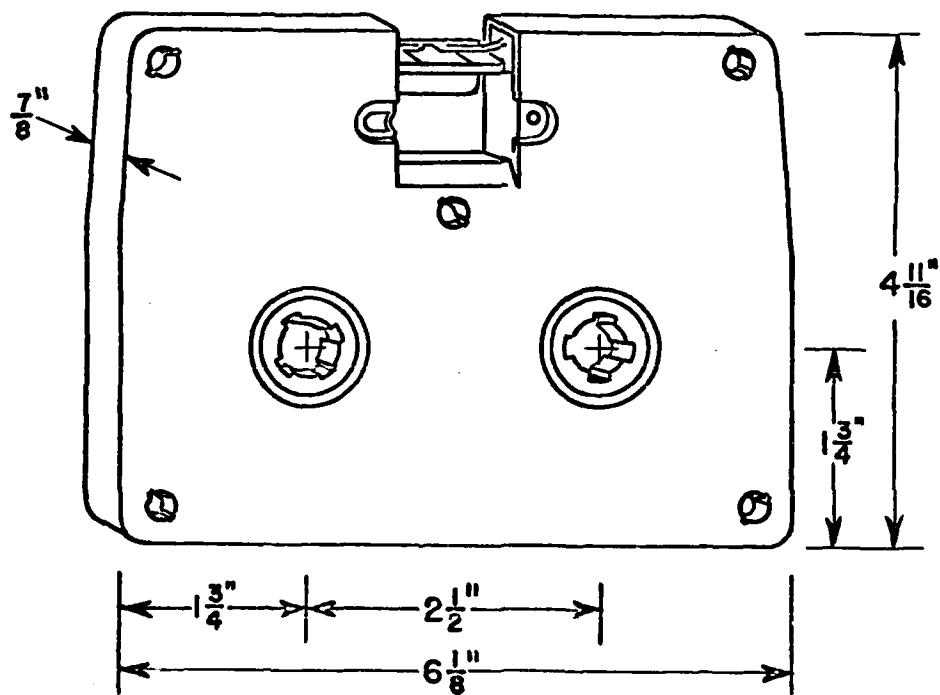
Used with: Stromberg Datagraphix Microsearch (DMS)

Film Size and Capacity: 16mm x 100' (5 mil base)

Spindle Type: 15/16" special

List Prices: \$6.00 each

Comments: Marketed by Stromberg Datagraphix



Manufacturer: Eastman Kodak Co. Type: 16mm cartridge
Address: 343 State Street Model: 1A
Rochester, New York 14605 2A

Person to

Contact: Mr. M. Schreiber

Used with: Various Recordak Readers

Automatic Threading

Microstar Reader PR-1
Loadstar Readers PS, PS-1, PS-1-K
Miracode Readers PEK & PEK-1

Manual Threading Readers

Starlet Reader PTA
20/20 Portable Reader P-20
Magnaprint Reader PE-1A

Film Size & Capacity: 16mm x 100' (5 mil base)

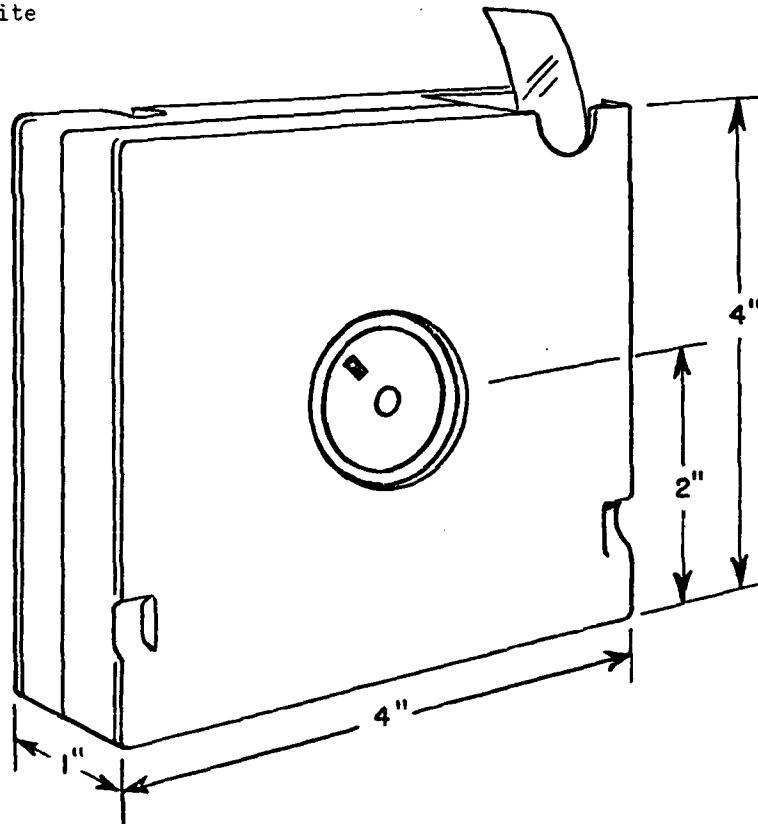
Spindle Type: 1/4" centering hub

List Price: 1A 2A

15-149	\$1.45 ea.	\$1.55 ea.
Case (150)	\$1.15 ea.	\$1.25 ea.

Compatible with:

Dietzgen 4317
Microfilm Products 2000
Ednalite



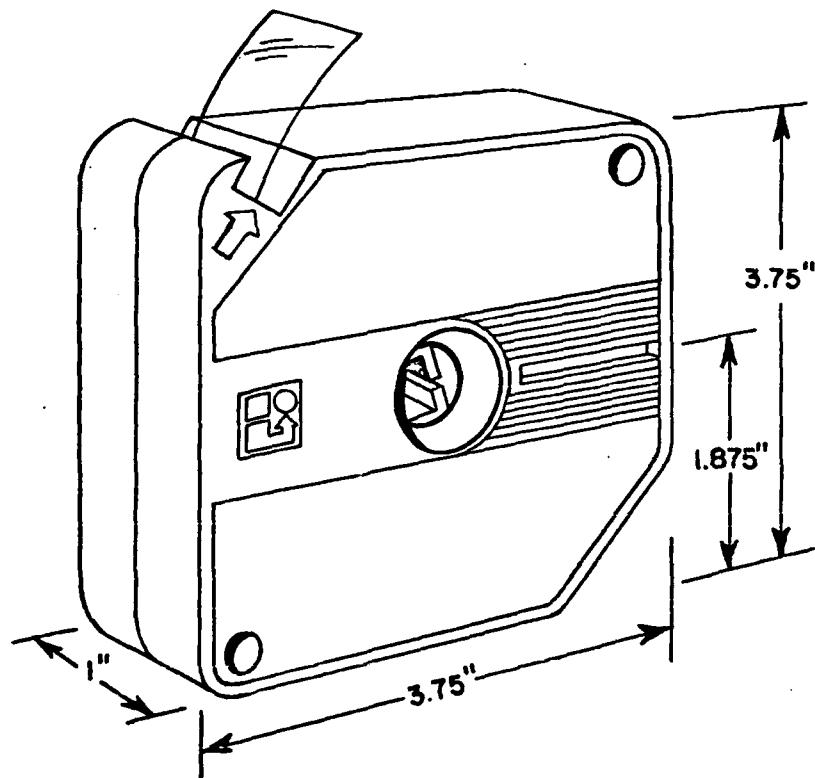
Manufacturer: Information Design, Inc. Type:
Address: 3247 Middlefield Road 16mm Cartridge
Menlo Park, California 94025

Person to Contact: Brett Butler, Marketing Manager

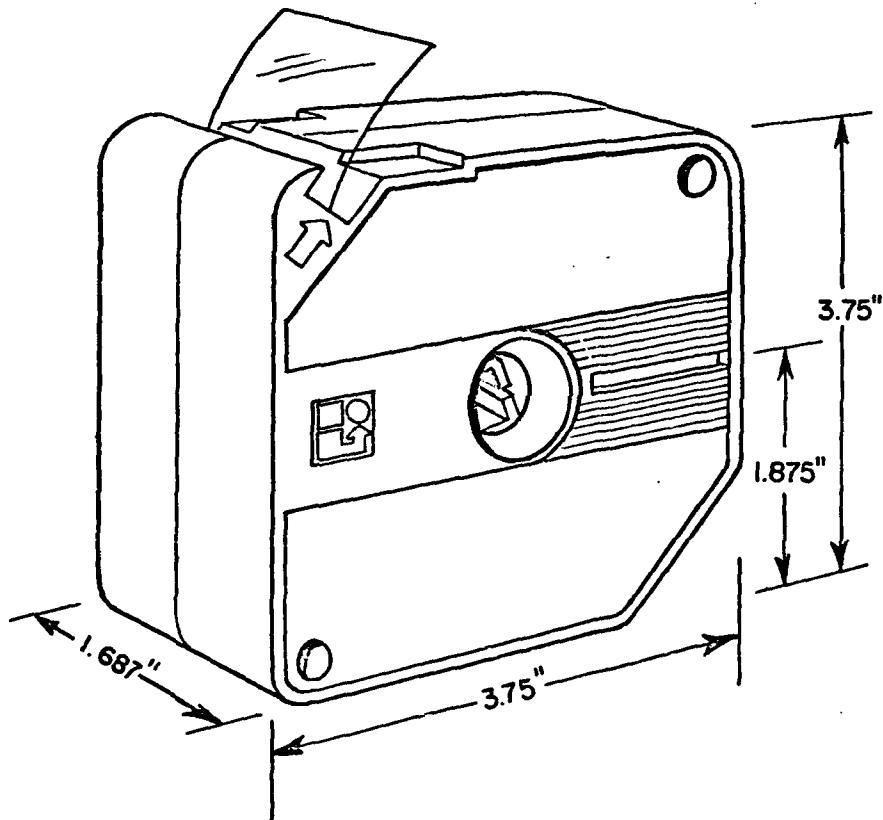
Used With: Most reel type equipment, such as Recordak MPE, Magnaprinter, Xerox 141 $\frac{1}{4}$ & Microprinter, 3m Filmac 100, 200R, 400 M&P, and others using standard reel spindle. Conversion kits required.

Film Size & Capacity: 16mm x 100' (5 mil film)
Spindle Type: Standard 5/16" square shaft
List Prices:

1 - 999 \$1.25
1000 - 4999 \$1.15 each
5000 - 10,000 \$1.05 each



Manufacturer: Information Design, Inc. Type: 35mm Cartridge
Address: 3247 Middlefield Road
Menlo Park, California 94025
Person to Contact: Brett Butler, Marketing Manager
Used with: Recordak MPE, 3M Filmac 100, 200R, 400 M & B, and others
use standard reel spindle
(conversion kits required)
Film Size & Capacity: 35mm x 100' (5 mil film)
Spindle Type: Standard 5/16" Square Shaft
List Prices: 1 - 999 \$1.85 each
1000 - 4999 \$1.70 each
5000 - 10,000 \$1.60 each



Manufacturer: Information Handling Services Type:
16mm Cassette
Address: 5500 South Valentia Way
Englewood, Colorado

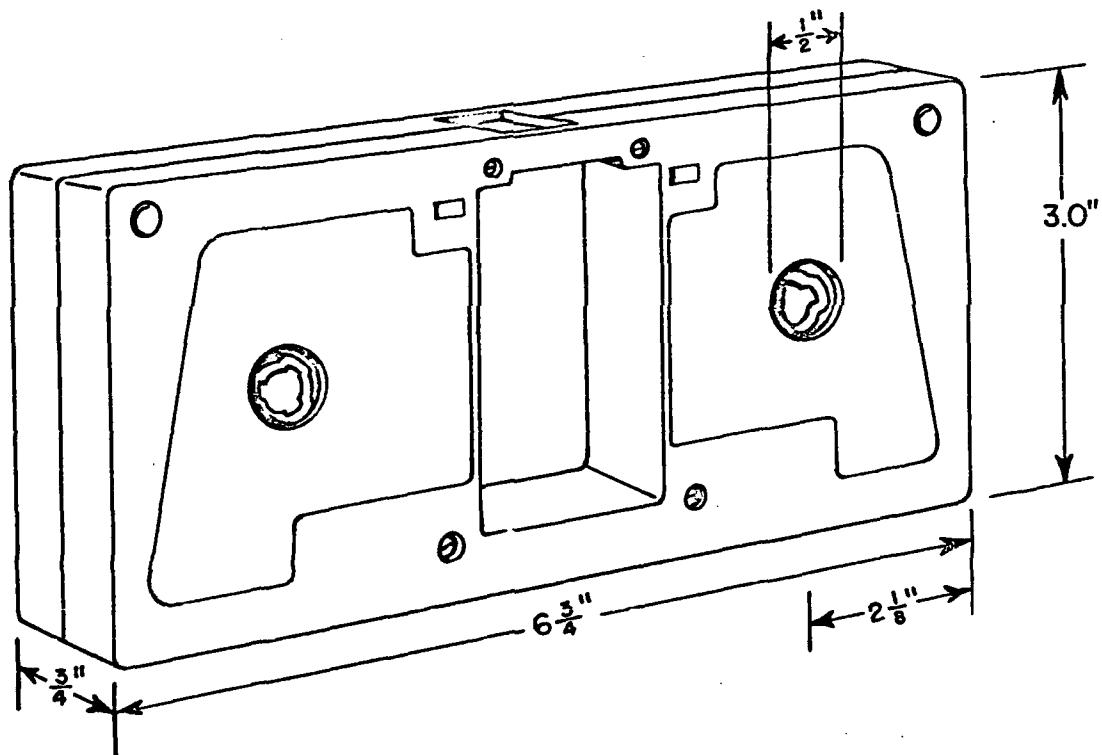
Person to Contact: Unknown

Used with: VSMF Satellite II

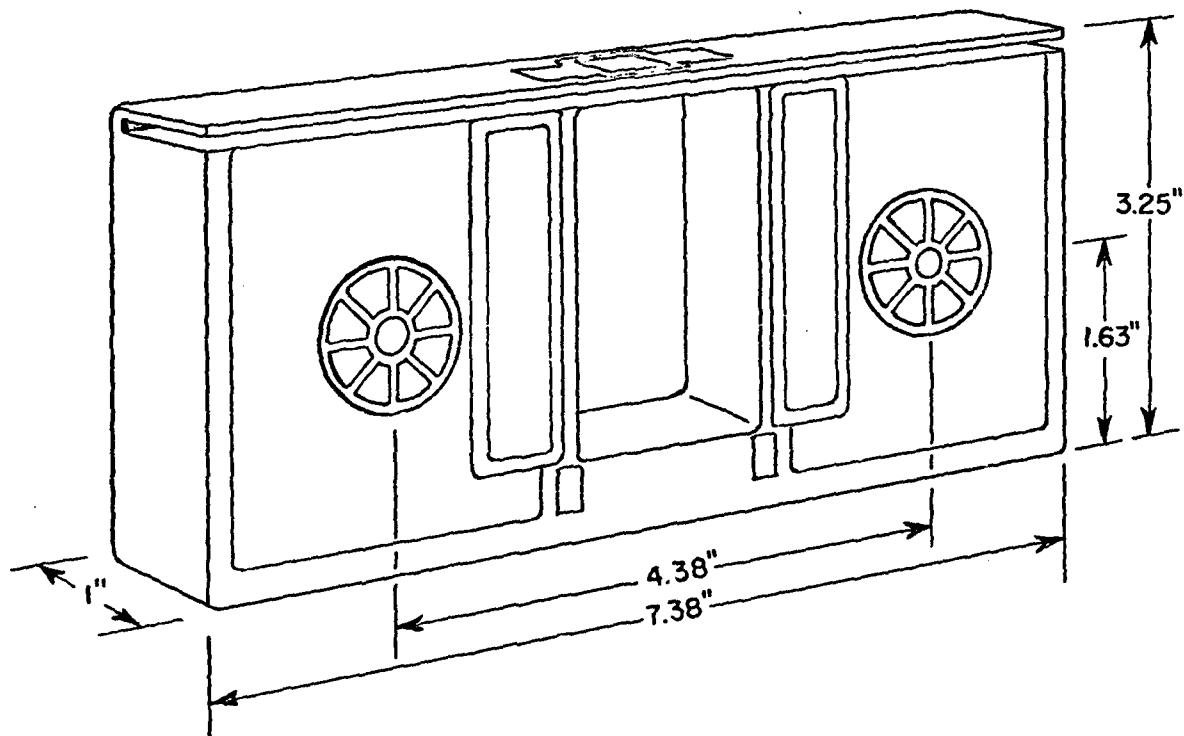
Film Size & Capacity: 16mm x 100' (5 mil base)

Spindle Type: Special

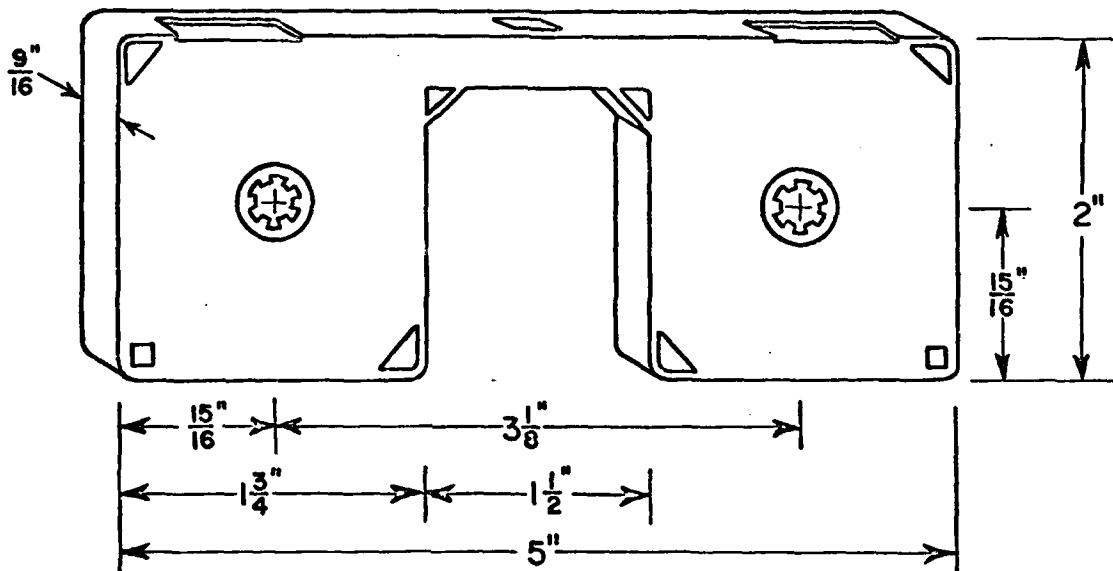
List Prices: 3.00 each



Manufacturer: Memorex Corp. Type: 16mm Cassette
Address: San Tomas & Central Expressway Model: C-100
Santa Clara, California
Person to Contact: A. G. Orsborn
Used with: Memorex 1642 Viewer
Memorex 1643 Autoviewer
Memorex 1650 Viewer/Printer
Film Size and Capacity: 16mm x 50' (5 mil)
Spindle Type: 15/16" special
List Prices: 20 - 80 \$1.75 each
100 - 180 \$1.50 each
200 - 980 \$1.35 each
1000 + \$1.25 each



Manufacturer: Micro 8 Company Type: 8mm cassette
Address: P.O. Box 1087
LaCrosse, Wisconsin 54601
Person to Contact: A. L. Baptie
Used with: Micro 8 Model A
Micro 8 Model C
Film Size and Capacity: 8mm x 50' (thin base)
Spindle Type: 5/16" special
List Prices: \$1.50 each
Quantity discounts available



Manufacturer: Stromberg Datagraphix Type: 16mm Cartridge
Address: P. O. Box 20291 Model: SD 1700
San Diego, California 92120

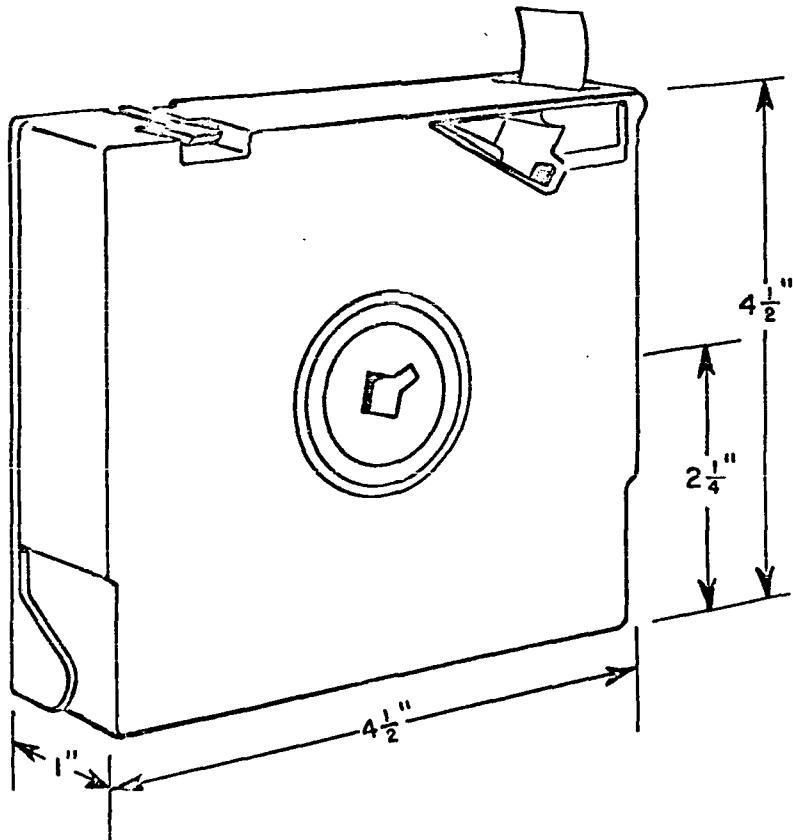
Person to Contact: Mr. Donald Stanley

Used with: Datagraphix 1700 Roll Film Inquiry Station

Film Size & Capacity: 16mm x 100' (5 mil film)
Spindle Type: Standard 5/16" square shaft with 1-3/8"centering shoulder

List Prices: SD 1700 Cartridge Assembly

	10-90	100-190	200 +
Shell	\$.505 ea.	\$.425 ea.	\$.365 ea.
Spool	<u>.565</u>	<u>.505</u>	<u>.445</u>
	\$1.070 ea.	\$.930 ea.	\$.810 ea.



Manufacturer: 3M Co., Microfilm Products Division

Type:
16mm Cartridge

Address: 3M Center, Building 235-2A
St. Paul, Minnesota 55101

Person to Contact: S. M. Trippe

Used with: 3M 400C Reader & Reader/Printer
3M 700 Readers

Compatible with: (requires spindle adaptor)

Recordak P-20 Reader
Washington Scientific Industries Reader
Ednalite 1670 Reader
Microfilm Products 2000
Dietzgen 4317

Film Sizes & Capacity:

16mm x 100' 6 mil film

Spindle Type:

Patented drive

List Prices:

\$1.25 each

